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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,907	07/24/2003	Nobumasa Abe	Q76663	1205
23373	7590	04/14/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			LEE, PETER	
			ART UNIT	PAPER NUMBER
			2852	

DATE MAILED: 04/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/625,907

Applicant(s)

ABE, NOBUMASA

Examiner

Peter Lee

Art Unit

2852

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (U.S. pn 6343198) in view of Endo (U.S. pa 2002/0085849).

Sato teaches an image forming apparatus (Fig. 4) comprising image forming stations for respective colors arranged along a paper transfer belt (Fig. 4 part 10) (ie. transfer belt), each said image forming station including an photoconductive drum (Fig. 4 part 1) (ie. image carrier), a charger (Fig. 1 part 2) (ie. charging means), and a developing device (Fig. 4 part 3) (ie. developing means) disposed around said image carrier, said image forming apparatus further comprising an apparatus body (ie. housing body) in which said image forming stations and said transfer belt are situated (column 1 lines 36-38), a cassette structure (Fig.4 part 16) (ie. support frame) for belt rollers (Fig. 4 parts 10A and 10B) (ie. support rollers) around which said transfer belt is laid with some tension, wherein said support frame is attached to the housing body such that the support frame is detachable relative to the housing body by means of pivotal movement(column 4 lines 17-24), said image forming apparatus being characterized by further having a locking means for locking said support frame to the housing body (col. 4 lines 25-26) (ie. locking means). The cassette structure (ie. support frame) is taught to have connected to it a sensor (part 14) used for properly registering the belt (part 10).

Sato does not teach having a density detection sensor, or the positioning of such a sensor, as part of an image forming apparatus.

Endo teaches the use of a dual sensor (part 27) capable of detecting an image toner density on an intermediate transfer belt, as well as detecting an image position for maintaining proper registration of toner images being printed on the intermediate transfer belt. The sensor is positioned such that the sensor faces the transfer belt (paragraph [0057]). Although the sensor taught by Sato is not used on an intermediate transfer belt, the reflection sensor taught by Sato is analogous to the image position detecting sensor taught by Endo for having the same purpose of

Art Unit: 2852

ensuring a properly aligned image being transferred to a print sheet. Positioning the sensor either by the locking means, as in claim 1, or the pivot means, as in claim 4, is deemed non-critical according to *In re Cole*, 140 USPQ 230 (CCPA 1964) for not being fully disclosed in the specification prior to the claims. It would have been obvious to a person of ordinary skill at the time the invention was made to modify the sensor taught in Sato to have the dual purpose capability of the sensor taught by Endo. One of ordinary skill in the art would have been motivated to utilize the sensor taught by Endo in order to serve the dual purpose of detecting the relative positions of the respective color toner images for image alignment and to detect the toner density levels to account for stabilizing toner levels in the images (page 5 paragraph [0076]). Further, one of ordinary skill in the art would have been motivated to position the image density detecting means at the top of the apparatus to avoid degradation of the apparatus by avoiding toner spillage onto the detecting means as well as unwanted heat generation from the fixing means (paragraph [0077]).

3. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Endo as applied to claims 1, 2, 4, 5 above, and further in view of Kusaba (US pa 2002/0090234).

Sato in view of Endo teach the limitations regarding claims supra.

The invention of Sato in view of Endo does not teach the use of an intermediate transfer belt.

Kusaba teaches the use of an intermediate transfer belt in an image forming apparatus (part6). It would have been obvious at the time of the invention for one with ordinary skill in the

Art Unit: 2852

art to modify the invention taught by Sato in view of Endo to use an intermediate transfer belt as taught by Kusaba. The motivation for such an action is that an intermediate transfer belt has the advantage of not requiring any processing or control for the transfer material and it also has the advantage of utilizing a wide range of transfer materials regardless of length, width, or thickness (Kusaba page 1 paragraph [0011]).

#### ***Response to Amendment***

Amendments to the specification, claims, and drawings have been entered.

#### ***Response to Arguments***

4. Applicant's arguments, see p. 10 first paragraph, filed 2/23/2005, with respect to the rejection(s) of claim(s) 1 and 4 under Sato in view of Endo have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Sato in view of Endo. The new rejections are made in response to the applicant entering new limitations pertaining to the image density detecting means being connected to a support frame. This new claim limitation is, however, still taught by combining the references of Sato in view of Endo as laid out above in the newly written rejections.

5. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the

Art Unit: 2852

teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case:

Applicant states on page 10 top half, that none of the prior art references cited teach an image density detecting means being connected to a support frame as the newly amended claims reveal. However, upon further consideration newly explained combination of the same Sato in view of Endo has been used to reject the independent claims 1 and 4. It is believed that all the prior art references provide sufficient motivation to combine. It is further noted that Endo does in fact teach the use of an intermediate transfer belt (part 8). However, the teachings of Kusaba have been used to explicitly point out the beneficial motivation for modifying an image forming apparatus to utilize an intermediate transfer belt as is well known in the art.

Art Unit: 2852

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Lee whose telephone number is 571-272-2846. The examiner can normally be reached on mon-fri 9:00 am-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley can be reached on 571-272-2136. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PL 4/11/2005

A handwritten signature in black ink, appearing to read 'A. Grimley', with a long horizontal flourish extending to the right.

**ARTHUR T. GRIMLEY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800**